Remarks

The present response is to the Office Action mailed in the above-referenced case on October 14, 2004. Claims 1-4, 9-11, 15-18, 21, 23 and 25-34 are presented for examination. Claims 1-4, 9-11, 15-18, 21, 23 and 25-34 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu in view of Viswanthan et al., and in further view of Wildford.

Applicant has again carefully studied the prior art references cited and applied by the Examiner, and the Examiner's rejections, statements and the "Response to Arguments" in the instant Office Action. Applicant herein amends claims 1 and 18 to positively recite that the randomized tag arbitrarily varies paths in the network in order to fully utilize the network resources.

Referring to the "Response to Arguments" portion of the Office Action, the Examiner states that Hsu teaches a bias value which is a function of the flow priority, bandwidth demand, link bandwidth and maximum available link bandwidth (Col. 1, lines 56-59 and Col. 8, lines 13-35). The Examiner contends that because a decision is made on these "random" factors, the route selected is random which means that the label selected is also random (i.e. all options are "nearly likely").

Applicant argues that with the present claim amendments limiting the function of the randomized tag the Examiner's position is not longer valid. Applicant applies a randomized tag to arbitrarily vary the paths used in routing thereby utilizing all available resources. The use of randomizing function allows one to vary paths in the network in order to fully utilize the network resources (i.e, to use in theory all available paths). For example, as seen in applicant's Fig. 1, the assignment of tag T to packet P at node i with index j results in a unique path from node i to a destination node of G. By use of an appropriate

randomizing function f and an appropriate normalizing function fN, varying the tag allows one to utilize more fully the resources of the system. That is, an approximately uniform distribution over the possible values for tag T can result in an approximately uniform distribution over the possible paths from node i to node j (page 9, last paragraph).

Applicant argues that Hsu teaches as a whole, a cost bias used in all routing which teaches away from the randomized tag as claimed. Hsu specifically teaches that; "the Dijkstra technique employed by OSPF chooses the path to each destination based on the cumulated cost to that destination. Therefore, if a network has all router links of cost 1, the cost metric becomes equivalent to hop count and the least-cost path is simply the shortest-hop path" (Col. 5, lines 51-55). Hsu teaches (col. 12, lines 31-40) that in the event of multi-paths with equal biased cost, the path bandwidth serves as a tiebreaker. Applicant argues that a randomizing tag is not taught or suggested in the art of Hsu as all routing is done with a cost bias first, and then uses factors such as bandwidth to further determine the path. Applying a randomized tag, as claimed in applicant's invention, is not taught or suggested in Hsu.

Applicant also points out that applicant's independent claims specifically recite "accessing a tag and a directed-graph index from the packet at a first node". The use of a directed-graph index, which is included in the arriving packet at the first node, is a unique aspect of applicant's invention which clearly distinguishes over the combined prior art. Neither Hsu, Viswanthan nor Wildford teach or suggest using a directed-graph index *accessed from the packet.*

The primary reference of Hsu, however, does disclose, with reference to figure 3, using a directed-graph at the router but there is no teaching pertaining to an index to the graph obtained from a received packet. Hsu specifically teaches that the network topology is represented by a directed graph (V,E). V represents

the set of vertices, which include both routers and transit networks (i.e., non-stub networks), and E is the set of unidirectional links. If vertices v and w belong to V and are directly connected, (v,w) represents the connectivity from v to w and (w,v) represents that from w to v (Col. 5, lines 28-35). Hsu teaches that each router in the network maintains an image of the topology (V,E) and c(v,w) for all (v,w)c E through standard OSPF link state advertisements (Col. 5, lines 56-63).

The Examiner makes statements in the "Response to Argument" portion of the Office Action which are clear assumptions and not gathered from the actual teaching of Hsu. The Examiner states that the limitation is met in Hsu because Hsu uses a directed graph where identifying elements are used to reference the directed graph (i.e. as packets are routed using a directed graph, then by definition, there is some information used in the packet to index the directed graph which meets the limitation).

Applicant argues that the Examiner's above statement that Hsu uses a directed graph where identifying elements are used to reference the directed graph is simply false. There is no teaching in Hsu of such an index being carried and accessed from the incoming packet. Hsu only teaches one directed graph stored at each router storing the entire topology of the network. Applicant's invention uses an index in the packet pointing to a specific directed graph because not all routers/nodes store the same graph. Therefore, there is no motivation in the art of Hsu to utilize an index for a directed graph in an incoming packet.

Applicant's invention teaches that the directed-graph index arrives with the packet arriving at the network, and the tag as well as the directed-graph index is accessed from the packet, at first node of the network. Applicant argues that the fact of using a directed-graph index, as in the reference of Hsu, does not negate applicant's specific limitation of accessing the directed-graph index along with the tag at the first node in the network. Hsu nowhere teaches or suggests

accessing the directed-graph index at the first node, either in the portions cited and applied by the Examiner in support of the Examiner's statements, or anywhere else in the remainder of the reference.

Applicant therefore believes claims 1 and 18, as amended, have been demonstrated to be clearly and unarguably patentable over Hsu in combination with Viswanthan and Wildford, as Hsu fails as a primary reference for the reasons argued above by applicant. Depending claims 2-4, 9-11, 15-17, 21, 23, and 25-34 are then patentable on their own merits, or at least as depended from a patentable claim.

As all of the claims standing for examination have been shown to be patentable as amended over the art of record, applicant respectfully requests reconsideration, and that the present case be passed quickly to issue. If there are any time extensions needed beyond any extension specifically requested with this amendment, such extension of time is hereby requested. If there are any fees due beyond any fees paid with this amendment, authorization is given to deduct such fees from deposit account 50-0534.

Respectfully submitted,
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